



US005838551A

United States Patent [19] Chan

[11] **Patent Number:** **5,838,551**
[45] **Date of Patent:** **Nov. 17, 1998**

[54] **ELECTRONIC PACKAGE CARRYING AN ELECTRONIC COMPONENT AND ASSEMBLY OF MOTHER BOARD AND ELECTRONIC PACKAGE**

5,422,433 6/1995 Rivera et al. 174/35 GC
5,530,202 6/1996 Dais et al. 174/35 R

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[21] **Appl. No.:** **691,056**

[22] **Filed:** **Aug. 1, 1996**

[51] **Int. Cl.⁶** **H05K 9/00**

[52] **U.S. Cl.** **361/818**; 361/760; 174/35 R;
174/35 GC; 257/699; 257/723; 257/728

[58] **Field of Search** 361/760, 767,
361/818; 174/35 R, 35 GC, 357 S, 51;
257/659, 660, 699, 723, 728, 738, 778;
437/221; 29/832, 840

[56] **References Cited**

U.S. PATENT DOCUMENTS

5,355,016 10/1994 Swirbel et al. 174/35 GC X
5,400,949 3/1995 Hirvonen et al. 361/818 X

[57] **ABSTRACT**

Electronic package with an electronic component mounted upon a PCB or ceramic substrate by first level interconnects and housing second level interconnects on the other side of the PCB. The component is protected by an EMI shield which is grounded to a ground plane of the PCB. Especially significant when there are a plurality of components protected by the shield and when at least one of the components is an integrated circuit component (I.C.C.). The package is thus prebuilt with the EMI shield and without a separate package required for each I.C.C., and is robust in construction for shipping. The shield and ground plane provide a Faraday cage which is especially complete when the shield extends around edges of the PCB and onto its other side. The package is ready for connection to a motherboard by use of the second level interconnects and process steps to place EMI shields individually onto mother boards are avoided.

12 Claims, 2 Drawing Sheets

